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VOLUME III: SURVEY PROTOCOL

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June 1984

1982 NATIONAL FISHERIES SURVEY
VOLUME III: SURVEY PROTOCOL

by

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DISCLAIMER

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PREFACE

The National Fisheries Survey (Survey) was conducted to provide statistically valid data on the status of fish communities in the United States. As a part of this effort, a detailed protocol was developed to ensure that all data gathering activities would be conducted in a uniform and standardized manner. These methods are the focus of this report. This report also makes recommendations for modifications in the Survey questionnaire so that future surveys can be accomplished with less time expended on personal contacts with respondents.

The protocol and the data handling activities were very successful. Over 98.5% of the 1,303 questionnaires mailed out were completed and returned. The steps outlined in this report are recommended for future surveys.

This report is the third in a three-volume series and is intended for use by professional fishery biologists and water quality management personnel; Federal and State decisionmakers and planners; and the general public. Volume I presents the initial findings of the Survey including data summaries, analysis, and interpretations (Judy, R.D., Jr., P.N. Seeley, T.M. Murray, S.C. Svirsky, M.R. Whitworth, and L.S. Ischinger. 1984. 1982 National Fisheries Survey. Volume I: Technical report, initial findings. U.S. Fish Wildl. Serv. FWS/OBS-84/06. 140pp. Volume II contains information on the statistical design used to select the Survey sample and to analyze the data. (Glauz, W.D. 1984. 1982 National Fisheries Survey. Volume II: Survey design. U.S. Fish Wildl. Serv. FWS/OBS-84/14. 77pp.).

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SECTION 1. INTRODUCTION

The U.S. Fish and Wildlife Service (FWS) initiated a project in 1978 to develop a National Fisheries Database with information obtained through the National Fisheries Survey (Survey). The two objectives of the database development were to (1) classify and assess the status of fisheries and aquatic habitat on a National basis; and (2) design a database that would be compatible with the U.S. Environmental Protection Agency's (EPA) River Reach File (RRF). The RRF is a computerized, geographical stream locator and data software system that serves as an interface with several other databases to allow the retrieval of water quality, water quantity, and aquatic life data for a specified river reach.

The project discussed in this report represents the protocol used to achieve the above objectives through the implementation of a survey for a statistically selected sample of 1,303 river reaches within the lower 48 United States. Forty-six states were represented in the final sample. The statistically designed sample of reaches used in this Survey, the revised Survey questionnaire approved by the Office of Management and Budget, and Survey protocol were developed by the FWS, the EPA, and several contractors (Olson et al. 1981; Glauz 1984).

For the purposes of the Survey, the Nation's waters were defined as all flowing streams and rivers in the lower 48 United States, including main stem impoundments but excluding the Great Lakes, wetlands, and estuaries.

This document describes the approach used by Engineering-Science in conducting the Survey. Section 2 discusses the overall project documentation, Section 3 discusses the identification of appropriate fishery biologists to respond to the Survey, and Section 4 describes the procedures for assembling and distributing the Survey questionnaire. Receipt and editing of the questionnaires, quality control, and transmittal procedures are outlined in Section 5, while followup, technical assistance, and alternative information gathering procedures are discussed in Section 6. Sections 7 and 8 present problems encountered during the Survey and recommendations for future survey improvements, respectively. Examples of draft forms used for monitoring the Survey and documenting the procedure are provided as Exhibits.

SECTION 2. FILE ORGANIZATION AND DOCUMENTATION

The success of this Survey was dependent on a well-organized system for questionnaire development, distribution, receipt, monitoring, followup, and transmittal of completed questionnaires to the FWS. This section outlines the organization of files and documentation that was implemented by Engineering-Science.

The primary file used was a "State Master File" for each of the 46 States included in the Survey. This file contained the following information:

- Names, addresses, and telephone numbers of key contacts, on a Master Cover Sheet (Exhibit 1);
- Names, addresses, and telephone numbers of designated fishery biologists, on a Reach/Respondent List (Exhibit 2);
- Mail out dates;
- A listing of reaches included in the Survey, the numbers and dates the questionnaires were returned to Engineering-Science, and the number of completed questionnaires transmitted to the FWS;
- Copies of all correspondence;
- Copies of Field Communication Records (Exhibit 3); and
- Any other State-specific documents.

These files were located at the Engineering-Science project headquarters in Denver, Colorado. A duplicate file was prepared at the project headquarters and distributed to the appropriate Engineering-Science project regional field offices for their use in documenting and monitoring the regional Survey efforts. The computerized listing of reaches, called the "Master List" (Exhibit 4), was maintained in a separate file.

A separate file contained copies of the highlighted reach maps and the EPA-generated Survey questionnaire labels. These items were used to prepare and mail out duplicate questionnaires as needed during the followup activities. The followup activities were conducted only when a respondent did not return the Survey questionnaire within 1 month from receipt. This file was organized on a State-by-State basis and was located in the project headquarters, Denver, Colorado.

Another set of parallel files in the project regional field offices and project headquarters were the "Transmittal" files. These files were used to track the questionnaires. Transmittal files consisted of a three-ring binder with a section for each regional field office and one for the project headquarters. Transmittal forms were inserted into the notebook by shipment number to enable weekly tracking of returned questionnaires.

The final manual file was the "Progress" report folder. This file was located in the project headquarters and contained copies of all weekly field and Survey supervisor's status reports and the monthly progress reports from the project manager to the FWS.

In addition to the files described above, procedures were established to facilitate the flow of hard copy Survey questionnaires from receipt by Engineering-Science through their transmittal to the FWS. After a questionnaire was received and logged in, it was subjected to technical (regional field office) and consistency (project headquarters) editing. If the questionnaire passed these edits, it was considered "Ready for Transmittal." If the editing was not completed for any reason (e.g., the respondent could not be reached to clarify Survey questionnaire response(s)), the questionnaire was set aside, awaiting further action. After the editing was completed and any problems were resolved, the questionnaire was considered "Ready for Transmittal." The completed questionnaires were forwarded from the regional field offices to the project headquarters at least once a week. Following processing in the project headquaters, the questionnaires were forwarded to the FWS.

SECTION 3. IDENTIFICATION OF KEY CONTACTS AND DESIGNATED FISHERY BIOLOGISTS

The FWS obtained the cooperation and a commitment to participate in the Survey from each of the 46 States represented in the sample of reaches. Initial contact was made by letter from the FWS Regional Director's office to the Director of each State's fishery management agency. The letter described the objectives of the study and requested that the State Director contact the FWS project director to discuss the Survey, as well as to identify the key contact for further communications.

When a State agreed to participate in the Survey, the FWS notified Engineering-Science to proceed with the Survey in that State. At that time, Engineering-Science sent the key contact in the State a letter (Exhibit 5) containing further information about the Survey, a copy of the U.S. Geological Survey (GS) Hydrologic Unit Series map for that State with the Survey reaches highlighted, and a listing of each reach in the State with space for the key contact to identify respondents that could provide information about that particular reach (Exhibit 2). The letter also introduced Engineering-Science to the key contact and asked that the Reach/Respondent List be returned to Engineering-Science within 7 days. Copies of the letter to the key contact and the Reach/Respondent List were included in the State file.

As copies of the Reach/Respondent Lists were received by Engineering-Science, the information was transcribed onto the Master Cover Sheet, and the Reach/Respondent List was used to guide the assembly and mailing out of the Survey questionnaires. If the Reach/Respondent List was not received after 7 working days, the Survey supervisor telephoned the key contact. To expedite the receipt of information, the Survey supervisor took as much information about the designated Reach/Respondent List as possible over the phone, including the respondent's name(s), address(es), and telephone number(s). Information about the designated respondent(s) was also distributed to Engineering-Science's regional field offices to facilitate the followup activities.

SECTION 4. ASSEMBLY AND MAIL OUT OF QUESTIONNAIRE PACKETS

Engineering-Science received copies of the GS Hydrologic Unit Series maps identifying the sample reaches in each State and map copies for each specific reach from the EPA. A copy of the GS Hydrologic Unit Series map was sent with the lead letter to the key contact in each State. Engineering-Science highlighted the sample reaches on each reach map. A copy of each individual reach map was retained in Engineering-Science's files.

The materials included in the questionnaire packet were:

- Highlighted reach maps (Exhibit 6);
- Reach identification computer-generated labels (Exhibit 7);
- Questionnaires (Exhibit 8);
- Return address labels (2 sets);
- Cover letters (Exhibit 9);
- Return envelopes; and
- Mailing labels.

The procedure followed in assembling each packet was:

- The reach identification label was affixed to the cover of each questionnaire.
- The reach map was stapled to the inside of the front cover of the questionnaire. The label and map for the reach were checked to ensure correct identification.
- The return address label was placed on the bottom of the inside back cover of the questionnaire. This label identified the Engineering-Science field office responsible for the State's questionnaires and prevented confusion if the return envelope included in the mailing was misplaced.
- After preparation of all of the questionnaires for a State, the Master Cover Sheet in that State's file was checked to see whether

all questionnaires were to be mailed to the key contact or to designated respondents. If there was more than one respondent, the questionnaires were sorted by respondent.

- A return envelope, addressed to the appropriate Engineering-Science field office, and a cover letter were included with each group of questionnaires. Enough postage was affixed to the return envelope to cover the cost of first class return mail.

- At this point, the respondent's mailing label was affixed to the mail out envelope and the questionnaires were mailed out.

The first two State packets assembled were totally checked. If no errors were found, 20% of each assembler's remaining packets were checked. If errors were found, packages were totally checked until error-free packets were produced. The following items were checked:

- The label on the front cover of the questionnaire identified the same reach as the map.

- The number of questionnaires equaled the number of sample reaches for the State.

- The correct Engineering-Science field office labels were affixed to the questionnaires and return envelope(s).

- If there was more than one respondent, the questionnaires were correctly assigned to respondents according to the Reach/Respondent List.

- All materials (questionnaires, cover letters, and return envelopes) were included in the package.

- The correct postage was affixed to the return envelope(s).

After a State's packet (or packets) passed quality control, the State's Master Cover Sheet was checked. The packet was mailed as scheduled, and the date of mailing was noted on the Master Cover Sheet for that State.

SECTION 5. RECEIPT, EDITING, AND TRANSMITTAL OF QUESTIONNAIRES

Each Engineering-Science field office maintained a folder for each State for which it had responsibility. Initial folders were distributed to field office staff during their training session in Denver. These folders contained:

- The EPA computerized listing of the Survey sample reaches;
- A copy of the letter to each State key contact; and
- The names and addresses of all respondents and assigned reaches (if available at the time of training).

A record of all communications, both written and verbal, was included in the appropriate State's folder. The project headquarters kept the regional field offices informed of the date that questionnaire packets were mailed out and the names and addresses of respondents.

The date of receipt was noted on the Master List as questionnaires were returned from respondents. The date of transmittal to Engineering-Science's project headquarters was also entered on the list.

The date that returned questionnaires were received by the Engineering-Science field offices was entered on the questionnaire cover on the "FR" line and on the master control printout. Engineering-Science fishery biologists completed a technical editing of the questionnaires and then initialed the "FED" line on the questionnaire cover. This editing consisted of:

- Verifying that all questions on a questionnaire were answered;
- Determining if all questionnaires from the respondents were enclosed in the returned package;
- Verifying that the respondent had identified genus and species for fish listed in Question 1; names were spelled properly and, that, to the best of the Engineering-Science field biologist's knowledge, the species occurred in the region;
- Verifying that, if "sport fish" was checked under the heading "Fish Classes," then the following categories were not checked: "endangered (Federal)," "threatened (Federal)," "special concern (State)," or "commercial;"

- Verifying that "anadromous" and "year-round residents" (reach description or use) were not both checked;

- Reviewing Question 2 to determine if specific years for sampling the reach for fish were given or if the respondent had entered a period of time (e.g., 10 years);

- Reviewing Question 3 to determine that individual months were not checked if "all year" or "none" was checked, and

- Reviewing Question 4 for the logical relationship between cause and effect categories. (For example, if a respondent indicated that a probable source of a water quality problem was mining but did not indicate a reason, the Engineering-Science field biologist would contact the respondent to verify this response. The Engineering-Science biologist did not change answers on Question 4 without contacting the respondent first.)

After all the questionnaires in a packet from a respondent were edited, the field biologist contacted the respondent to resolve any apparent errors or inconsistencies and to complete missing data. Any additions or corrections to the hard copy were made in green pencil so that it was possible to differentiate between information entered by the respondent and information that was subsequently entered or changed during the editing and error resolution process.

After a questionnaire was edited and any apparent errors resolved, the biologist who performed the editing initialed the "FED" line on the questionnaire and forwarded the questionnaire to the central office.

Each Engineering-Science regional field office prepared a Field Office Weekly Status Report on Friday of each week (Exhibit 10). This report included the status of all questionnaires assigned to that office. The report was telephoned to the project headquarters and a written copy was included in the next mailing to that office.

On Friday of each week, the field offices sent the edited questionnaires and other materials to Engineering-Science project headquarters by certified mail. The materials included in the weekly shipments were:

- The top (white) copy of the field communication records completed during the week;

- The edited questionnaires;

- The regional Field Office Weekly Status Report; and

- A Field Office Transmittal Slip (Exhibit 11) listing the EPA assigned identification numbers of the questionnaires included in the shipment and the number of field communication records (each field office numbered its shipments sequentially).

The date of receipt was stamped on the "DR" line on the questionnaire cover when the packages were received from the regional field offices. The contents of each package was verified against the Field Office Transmittal Slip and any discrepancies were brought to the attention of the sender or field biologist. Errors on transmittal slips were noted and the slips were filed in sequential order.

Questionnaires received from the regional field offices were edited for legibility, completeness, and internal consistency. Material that should not be entered into the FWS computer was crossed out in blue pencil. Items that were added were written in red pencil. For example, a single blue line was drawn through a number or word that was written illegibly and the correct entry was printed above the original in a clear hand in red pencil. Or, if "all year" was checked in Question 3 (Q 3) and there was a check for every month, a blue line was drawn through the checks under the individual months and the "all year" check was circled in red.

Field editors flagged missing and totally illegible entries for the attention of the Survey supervisor. In addition, they checked for internal consistency and reported any problems to the Survey supervisor. For example:

- If Q 2 = 1 or 2, then Q 2A must have been aswered.
- If Q 2 = 3, 4, or 5, then Q 2A must have been blank.

- If Q 2B = 1 or 2, then Q 2C must have been answered.
- If Q 2B = 3, 4, or 5, then Q 2C must have been blank.

- If Q 2 = 1 or 2, then Q 2B and 2C must have been blank.
- If Q 2C was blank, then Q 2 must have been 1 or 2 or Q 2B must have been 3, 4, or 5.

- In Q 3, if "all year" or "none" was checked, then the individual months must have been blank.
- If a month was checked, then "all year" and "none" must have been blank.

- If Q 4 = 1 or 2, then there must have been at least one entry in Parts I, II, III, or IV.
- If Q 4 = 3, 4, or 5, then Parts I, II, III, and IV must have been blank.

- If a category (1-38) was checked in Parts I, II, III, or IV of Q 4A, then a 1 (Major) or 2 (Minor) (39-82) must have been circled.
- If a 1 or 2 was circled for any category, then that category must have been checked.

- The number checked in Q 9 must be greater than or equal to the number checked in Q 5.

Finally, the editors flagged cases where respondents checked multiple answers when only one answer was indicated. When the questionnaire was checked, the editor initialled the "DED" line on the questionnaire cover.

Edited questionnaires were batched by State and forwarded to the FWS. The date of transmittal was noted on the Master List and the State Master Cover Sheet. A transmittal slip accompanied each shipment (Exhibit 12). The slip specified the State(s) included in the shipment, the total number of returned questionnaires from that State shipped to date, and whether or not questionnaires for all sampled reaches in that State had been transmitted to the FWS. A column was left on the form for the FWS to indicate whether or not it had verified the contents of the shipment. The FWS notified Engineering-Science immediately of any discrepancies between the transmittal sheet and the actual questionnaires received.

The Engineering-Science project headquarters compiled the Survey Supervisor's Weekly Status Report covering all States (Exhibit 13) from information in the regional field offices' weekly reports. This report showed, on a State-by-State basis, the status of all questionnaires, including the number received at the project headquarters, the number in the Engineering-Science regional field offices, and the number not yet received by the project headquarters. This weekly report was sent to the FWS for their information and review.

SECTION 6. TECHNICAL ASSISTANCE, CONTINGENCY PLANS, AND FOLLOWUP

TECHNICAL ASSISTANCE

A potential problem in the conduct of any survey is a low completion and return rate caused by a lack of technical assistance to respondents who have questions regarding the survey. To prevent this problem, a WATS line was installed at the Engineering-Science project headquarters in Denver in order to:

- Provide participants with an opportunity to ask questions about the questionnaire;
- Increase the quality of the responses through technical explanations of the questionnaire; and
- Provide participants with an opportunity to comment on the Survey and clarify any aspect of the Survey effort.

The WATS line was in service from March 25 through August 31, 1982, from 8 a.m. to 5 p.m., Mountain Time, Monday through Friday. The operator answered the phone using the introduction "National Fisheries Survey." An answering machine was in service after business hours to record any messages.

Respondents either spoke directly with the receptionist or left their name, phone number, question, and preferred time for a call back. If the receptionist answered, the call was referred to the Survey supervisor and/or a message was taken. When the supervisor answered the call, a field communications record was completed that contained the following:

- Name of the respondent;
- Date and time of the call;
- Reach identification number;
- Telephone number;
- Nature of the question; and
- Outcome of the contact and action items

The Survey supervisor decided whether he was the appropriate party to answer the question(s) or whether he should defer the question to an

Engineering-Science field biologist. As a general guideline, questions answered by the Survey supervisor and the Engineering-Science field biologist were categorized as follows:

Survey Supervisor

- How to complete the questionnaire
- How to classify certain types of fish
- Why the survey was being done
- What the schedule was

Field Biologist

- Fish classification for a specific reach
- Adverse conditions for a specific reach

If the supervisor decided to forward the question to a field biologist, the respondent was informed that he could expect a return call by the end of the following business day. The message was then forwarded to the field biologist for action.

If the message was recorded, the following steps were taken:

- The receptionist replayed the recorded messages from the previous day or weekend each morning from Monday through Friday. Each message was transferred to a field communications record.
- The receptionist forwarded messages to the Survey supervisor who was responsible for returning the call or referring the call to one of the Engineering-Science field biologists.

All telephone contacts were recorded on multipart Field Communication Records (Exhibit 3) and distributed as follows:

- White: Central office - State Master File,
- Yellow: If an action was required, this copy was returned to the Survey supervisor after the action was completed. This copy was then filed. If no action was needed, this copy was destroyed because it was a duplicate.
- Pink: This copy was retained by the originator (i.e., the field biologist) if he was located in a field office, or was sent to the appropriate field office if the contact was handled by the central office.

CONTINGENCY PLAN

The purpose of the contingency plan was to solicit cooperation from alternative respondents in the event that the initial State official contacted by the FWS did not wish to or could not participate in the Survey. By April 9, 1982, a list was compiled that required the activation of the contingency plan to identify alternative State respondent(s). Procedures followed in this effort were:

- The FWS notified Engineering-Science of States where the initial contact, e.g., a Chief of Fisheries, could not be used in the Survey;
- Engineering-Science and the FWS reviewed the situation in each State on a case-by-case basis and selected an appropriate strategy. The following actions were taken to preclude a subsequent refusal:
  - The initial contact was telephoned and asked for information on why he was not participating in the Survey.
  - The Survey project team requested the name of an alternative respondent(s) if available.
- Engineering-Science, together with the FWS, prepared an alternative contact list for each State where it was needed. Where the initial State official indicated alternative contacts, these persons were contacted first. Other potential respondents included:
  - University faculty and staff;
  - Federal agencies; and
  - Private organizations.
- The Survey project team contacted the alternative respondent by telephone, indicating that:
  - The referral came from the previous contact (if applicable);
  - The contact's cooperation was being requested in the National Fisheries Survey; and
  - A letter requesting the contact's participation in the Survey would be forthcoming. The alternative respondent was sent a Reach/Respondent List and the appropriate questionnaire(s) if he was able to participate in the Survey.

The following procedure was followed when the initial contact did not provide any referrals:

- The FWS and Engineering-Science prepared a list of prospective State cooperators from the potential contact lists.
- The Engineering-Science Survey supervisor telephoned the first contact on the list, requesting participation in the National Fisheries Survey.
- If the respondent expressed an interest in participating in the Survey, he was sent a formal letter requesting participation and the respondent was coded on the Master Cover Sheet and Reach/Respondent List.

- If the respondent could not participate in the Survey, the reasons were determined and alternative names of cooperators were solicited. The Engineering-Science Survey supervisor continued telephone efforts until a State respondent(s) was identified or all referrals were contacted.

It was expected that some contacts would indicate one of the following conditions for participation:

- Compensation was provided for time and expense; or

- Someone else compiled data that were available in file records and entered them on the questionnaires.

Written documentation of participation requirements by the State was made prior to any commitment of resources by Engineering-Science and the FWS. The FWS reviewed probable costs and time implications of these conditions. States where problems were anticipated were identified during the first month of the Survey. The final solution to these cases was determined during consultations between Engineering-Science and the FWS on an individual State basis and was based, in part, on the necessity of these data for successful Survey completion.

FOLLOWUP

Some nonresponse was expected; however, certain procedures were implemented to reduce the amount of nonresponse. Engineering-Science followup procedures were keyed to the date of the cover letter because it was expected that questionnaires would be mailed to the respondents in stages. The followup efforts were organized on the State level, with the Engineering-Science field biologist as the responsible person for the followup activities. Followup procedures are outlined below:

Phase 1. First Followup

Each of the four Engineering-Science field biologists received copies of the cover letters with the appropriate Reach/Respondent Lists, Computerized Listing of Reaches included in the Survey, and the Master Cover Sheet, which contained the necessary information for followup activities. This information included:

- The date the questionnaires were mailed;

- The names, addresses, and telephone numbers of respondents; and

- The sample reaches in the State.

The field biologist, through the preparation of the Weekly Status Reports, had the most current knowledge of the status of received and outstanding questionnaires by State. When the field biologist prepared the second Weekly Status Report after questionnaires were mailed, he noted which States had outstanding questionnaires. During the early stages of the Survey, it was probable that most States would have outstanding questionnaires. The field biologist compared the list of States outstanding with the Master Cover Sheet to:

- Verify that the questionnaires had been mailed; and
- Obtain the name(s) of the respondent(s) and their telephone numbers.

The most efficient method to review the status of the Survey in each State was to pull the file for that State and make phone calls with the file readily available. Once the respondents were identified, the field biologist:

- Telephoned the respondent. If the respondent did not answer the first call, the field biologist made a note of the name and number for use in calling back later.
- When the respondent was reached by telephone, the field biologist introduced himself and identified the association with the National Fisheries Survey.
- The field biologist explained that he was calling to:
    - Verify that the questionnaires had been received. If the questionnaires had not been received, the field biologist noted the situation in the Field Communication Record with a notation under "Action By" for the Survey supervisor. He also obtained the correct mailing address from the respondent. If the respondent stated that he was not the appropriate respondent, the field biologist reviewed the reach(es) with the respondent to verify that the questionnaire for the appropriate reach had been mailed. If the respondent was the wrong respondent or could not participate, the field biologist notified the Survey supervisor.
    - Ask if there were any questions about the Survey, the reach description, the questionnaire, and/or returning the questionnaire.
    - Emphasize the importance of returning the questionnaire to the National Fisheries Survey.
- The field biologist completed a Field Communication Record and transmitted it as required.

This first followup between Engineering-Science and the State respondent was intended to introduce the respondent to the field biologist as well as to check on the status of the questionnaire(s).

Phase 2. Second Mail Out

If a respondent had not recieved the questionnaire(s) from the initial mailing, a second set was mailed from the Engineering-Science project headquarters. The procedure for this mailing was:

- The Engineering-Science field biologist reported the telephone contact in the Field Communication Record sent to the project headquarters.

- If the respondent did not participate or felt that he was not the correct respondent, the Survey supervisor telephoned the State's key contact and requested clarification.

- If the respondent was the correct person, the Survey supervisor reviewed the Master Cover Sheet to verify:

  - That questionnaires had been mailed;

  - The date of mailing; and

  - The respondent's name and address.

- The Survey supervisor initiated a second mailing and noted the mailing in the State file.

Phase 3. Second Telephone Call

The preparation of the fifth Weekly Status Report after a questionnaire was mailed initiated the second telephone call. As stated in the cover letter, questionnaires were to be returned within 1 month. The fifth Weekly Status Report was the end of the first month.

The purpose of the second telephone call was to identify why the questionnaires had not been returned, to encourage the respondent to complete the questionnaires, and to identify lack of cooperation with the Survey. The field biologist telephoned the respondent explaining that:

- The questionnaires had not yet been received.

- The Survey was nearing completion and the questionnaires were required to produce a comprehensive database.

- If the respondent was having problems, the field biologist could assist him over the phone in the completion of the questionnaire.

If the respondent indicated he was not going to complete the questionnaire, the Survey supervisor was contacted. Phase 4 was developed to counteract these late notices of uncompleted questionnaires.

Phase 4. Refusals

As described in the first and second telephone call procedures, any lack of cooperation from a respondent was directed to the Survey supervisor. The Survey supervisor telephoned the key contact in the State to identify an alternative to the initial respondent. In those States where the key contact was responsible for the receipt and return of questionnaires, a lack of cooperation at this stage in the Survey was not likely to occur. If the key contact did decide not to continue to participate in the Survey, that State was placed on the State refusal contingency list and contingency plan activities (described earlier) were initiated.

Once an alternative contact was identified, the appropriate questionnaire(s) was mailed to that respondent as soon as possible, with an immediate telephone followup. The key contact was encouraged to contact the alternative respondent and to explain the circumstances behind the change in contact.

In some cases, the key contact was reluctant to pursue the return of late questionnaires and some questionnaires were outstanding even after the followup efforts. In this event, Engineering-Science contacted the FWS project officer to discuss the steps that should be taken to either gather the information for those reaches or drop those reaches from the Survey.

As the Survey progressed, the Survey supervisor noted on the Weekly Status Report when a State was completed. At that point, a letter was mailed to the key contact thanking him for his cooperation, time, and effort and reiterating that he would receive a copy of the final report resulting from the Survey.

SECTION 7. PROBLEMS ENCOUNTERED DURING THE CONDUCT OF THE SURVEY

Few serious problems were encountered during the Survey, largely because of the level of detail considered in the development of the Survey protocol. Problems that were encountered stemmed mostly from differences in the perceptions of the State fishery biologists of what information the Survey team was requesting for each question. Additionally, some biologists questioned the selection and distribution of reaches within their respective States. Specific questions that arose are discussed in detail below.

The major problem regarding the information requested on the questionnaire was whether or not the Survey team wanted all species of fish listed in Question 1. This was especially true in regions (e.g., the southeast) where as many as 80 species occur in a river system. In many instances, the biologists thought that the Survey wanted a list only of sport fish species. This problem was resolved when the biologists checked with Survey personnel or the Survey field biologists caught the omissions of species during the field editing of the questionnaires. The main reason for this problem was that only a few lines were provided in the questionnaire to respond to this question.

The second common problem was the respondent's misconception that the streams selected for the Survey would be used to characterize the status of the fish community in their respective States. This was especially true in the western States, where a large number, if not the majority, of the reaches were dry streams. A great deal of time was spent explaining that the reaches selected were for a National assessment and that State-by-State comparisons would not be made.

The third problem was the perceived amount of time necessary to complete the questionnaire. This problem occurred because the questionnaire mail out was delayed by information transfer difficulties and arrived at the beginning of the spring field sampling season. This problem was resolved once the State fishery biologist realized that each questionnaire only required 15 to 20 minutes to complete.

The fourth problem was the definition of sport fish used in the Survey. The definition was any fish that had a limit (volume, numbers, or weight) legally set by the respective State. This definition was strictly adhered to in the Survey; however, many States consider fish such as crappie and green sunfish as sport fish even though there are no limits on their capture or possession.

The final major problem encountered by the State fishery biologists was what to do about streams that had not been sampled for fish. The Survey project biologists recommended using existing data for similar streams in the same drainage basin. Many State fishery biologists were uncomfortable with this approach and conducted special field investigations to collect the needed data. This was especially true with perennial streams. For the most part, intermittent and dry streams were not sampled.

These problems were resolved, and the Survey was completed in a timely manner. The rate of return was 98.5% (1285 of 1303 questionnaires) which was higher than originally expected.

SECTION 8. RECOMMENDATIONS FOR FUTURE SURVEY EFFORTS

Few modifications are recommended for conducting the Survey, based on the high rate of return. The toll free WATS Line, which enabled the State fishery biologists to call the Survey project team with questions, was especially valuable. Additionally, the close coordination between the FWS, Division of Biological Services, Regional Directors, and the State Directors was invaluable in maintaining the cooperation of the Survey respondents.

Followup calls and letters to the respondents also contributed to the high response rate. These activities often provided the impetus for completing questionnaires, especially during the field season. Future surveys should be conducted during the off season.

The only other recommendations for Survey modifications deal with the Survey questionnaire.

1. The fish species list should be longer and/or specific instructions should be given to attach additional pages if the space provided is insufficient.
2. The definition of what constitutes a sport fish should be broadened.
3. Questions 5 through 9 should include an unknown sport fishery potential.
4. Question 9 should be limited to other reaches in the same drainage basin.

These modifications would result in a clearer questionnaire, reducing the amount of time spent by project personnel answering questions.

REFERENCES

Glauz, W.D. 1982. National Fisheries Survey. Volume II: Survey design. U.S. Fish Wildl. Serv. FWS/OBS-84/07. 77pp.

Olson, J.E., E.A. Whippo, G.C. Horak. 1981. Reach file phase II report: A standardized method for classifying status and type of fisheries. U.S. Fish Wildl. Serv. FWS/OBS-81/31. 56pp.

Exhibit 1. Master cover sheet.

NATIONAL FISHERIES SURVEY

Master Cover Sheet

State: ________________________

Key Contact: ________________________

____

____

____

Questionnaires to be mailed to:

Key Contact ( )

State Fishery Biologist ( )

Total reaches in sample: ____________

Date questionnaires to be sent (if delayed)

__/__/__

Date questionnaires mailed __/__/__

Date questionnaires sent to FWS*

Date	#	Cum. Total
__/__/__	____	______
__/__/__	____	______
__/__/__	____	______
__/__/__	____	______

Names and addresses of state fishery biologists (if applicable)*

1) ________________________

____

____

____

2) ________________________

____

____

____

3) ________________________

____

____

____

4) ________________________

____

____

____

*Attach additional sheets if necessary.

Exhibit 2. Reach/respondent identification form.

NATIONAL FISHERIES SURVEY

Fish and Wildlife Service
U.S. Department of Interior
Ft. Collins, Colorado

U.S. Environmental Protection Agency
Washington, D.C.

Engineering-Science, Inc.

REACH/RESPONDENT IDENTIFICATION FORM

STATE NAME: ______________________________

The following is a listing of the reaches selected for analysis in your state. The reach numbers listed below correspond to the numbers on the enclosed state hydrologic map. If you choose to designate biologists other than yourself to be the respondents for the survey, please indicate the names and addresses of the designated respondent(s) in the spaces provided. Please return this form to us in the enclosed envelope.

REACH	RESPONDENT NAME, COMPLETE ADDRESS AND PHONE
	____
	____
	____

☐ All correspondence for this survey should be addressed to me.

☐ All correspondence can be sent to designated respondents.

For information call
1-455-4427 (Colorado)
1-800-525-2041 (outside Colorado)

Exhibit 3. NFS field communication record.

NFS FIELD COMMUNICATION RECORD

State: ______________________

Caller's Name: ______________________

ES Staff: ______________________

Incoming: ES ( ) State ( ) Other ( )

Outgoing: ES ( ) State ( ) Other ( )

Date__/__/__

ACTION BY	

Exhibit 4. Computerized listing of reaches from master list.

```
REACH IDENTIFICATION          MONTANA

  REACH NAME:  BEAVERHEAD RIVER

  CATALOGING UNIT NUMBER:  10020002

  REACH NUMBER:   058-0

  REACH LENGTH (MILES):    7.07

  UPSTREAM REACH
    BOUNDARY:  STR FLOWS THRU CANYON

  DOWNSTREAM REACH
    BOUNDARY:  GRASSHOPPER CREEK


REACH IDENTIFICATION          MONTANA

  REACH NAME:  BLACKTAIL DEER CREEK

  CATALOGING UNIT NUMBER:  10020002

  REACH NUMBER:   067-A

  REACH LENGTH (MILES):    2.00

  UPSTREAM REACH
    BOUNDARY:  JAKE CANYON CREEK

  DOWNSTREAM REACH
    BOUNDARY:  MOOS CREEK
```

Exhibit 5. Key contact/lead letter.

NATIONAL FISHERIES SURVEY

Fish and Wildlife Service
U.S. Department of Interior
Ft. Collins, Colorado

EPA
U.S. Environmental Protection Agency
Washington, D.C.

Engineering-Science, Inc.

Dear

This letter is in response to communications between your Agency and the U.S. Fish and Wildlife Service designating you as the key contact for the National Fisheries Survey. The purpose of the National Fisheries Survey designed by FWS/EPA and conducted by Engineering-Science, Inc. is to evaluate the "biological integrity of the Nation's waters" as reflected by the status of fisheries and aquatic habitat. You may wish to respond to the questionnaire(s) yourself or designate this responsibility to another biologist in your Agency who you feel is the most knowledgeable of the reach(es) defined.

Enclosed is a highlighted copy of the U.S.G.S. Hydrologic Unit Map (scale 1:500,000) and a list of the National Fisheries Survey reaches selected in your State for your review and designation of respondents, if other than yourself, for each reach. Please indicate on the enclosed reach list the name(s) and address(es) of the respondents and mail back to us within seven (7) working days. Also indicate if all correspondence should come to you. When we receive this information we will forward the questionnaires to the appropriate office.

We appreciate your cooperation in this effort and want to reemphasize the importance of your knowledge in completing the survey. Upon completion of the National Fisheries Survey, the FWS will provide your Agency with a copy of the final report. If you have any questions concerning your responsibilities as the key contact or the reach(es) within your State, please do not hesitate to contact us at the toll free number below.

Sincerely,

Paul N. Seeley
Paul N. Seeley
Engineering-Science, Inc.
NFS Project Manager

Molly Whitworth
Molly R. Whitworth
USFWS WELUT
NFS Project Officer

For information call
1-455-4427 (Colorado)
1-800-525-2041 (outside Colorado)

Exhibit 6. Highlighted reach map.

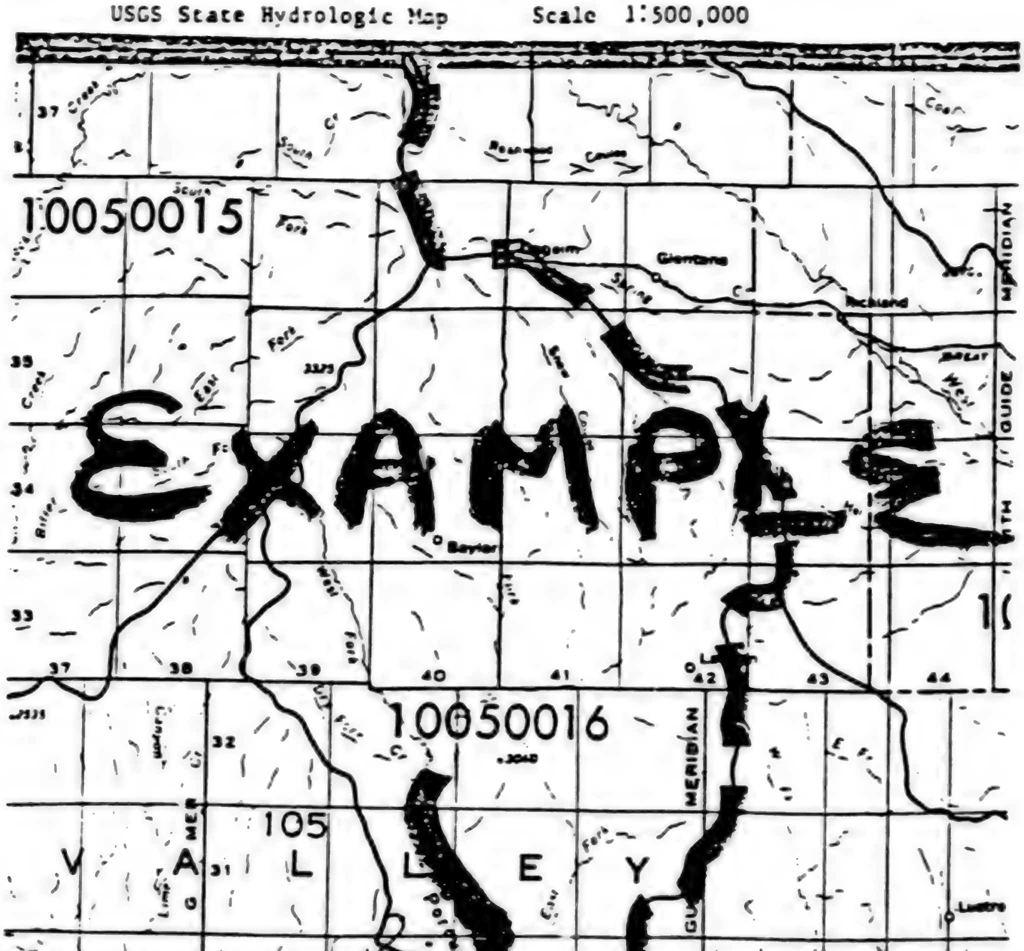
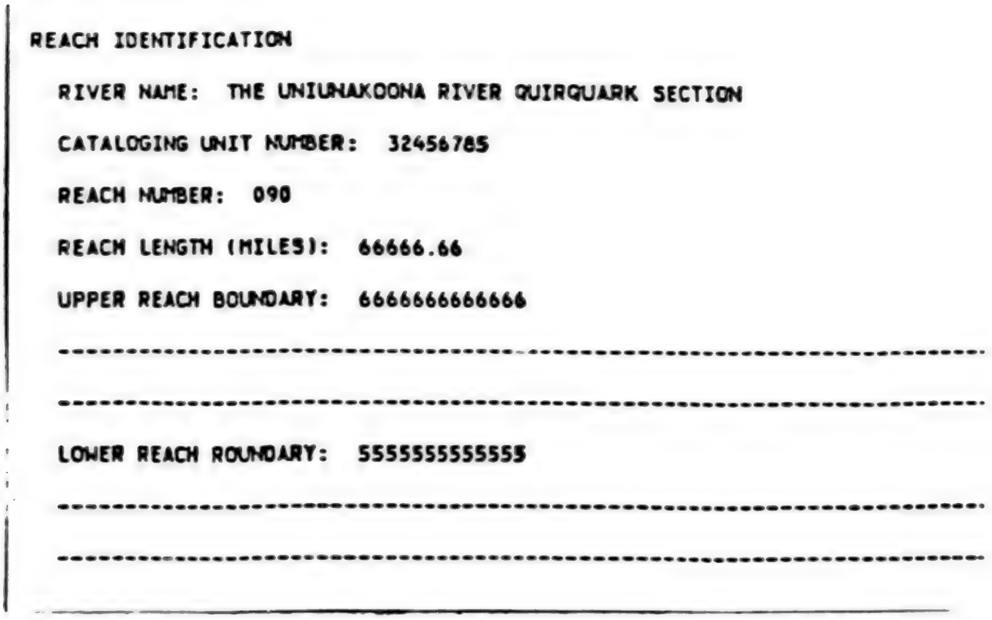


Exhibit 7. EPA computer-generated reach identification label.



```
REACH IDENTIFICATION

  RIVER NAME:  THE UNIUNAKOONA RIVER QUIRQUARK SECTION

  CATALOGING UNIT NUMBER:  32456785

  REACH NUMBER:  090

  REACH LENGTH (MILES):  66666.66

  UPPER REACH BOUNDARY:  6666666666666

  --------------------------------------------------------------------

  --------------------------------------------------------------------

  LOWER REACH BOUNDARY:  5555555555555

  --------------------------------------------------------------------

  --------------------------------------------------------------------
```

Exhibit 8. Survey instrument.

OMB No. 2000-0410
Approval Expires 10/31/83

NATIONAL FISHERIES SURVEY

U.S. Fish and Wildlife Service
Ft. Collins, Colorado

U.S. Environmental Protection Agency
Washington, D.C.

Engineering-Science, Inc.

If you have any questions or need additional information concerning this questionnaire, please call the National Fisheries Survey toll-free number 1-800-525-2041. In Colorado, call 1-455-4427.

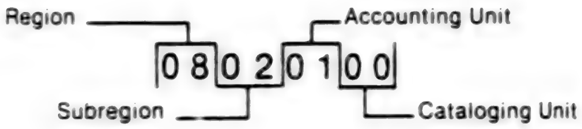
The reach described above was selected by a statistical sampling procedure. This reach is highlighted on the map on the following page for your reference when answering the questions.

OFFICE USE ONLY

FH ____________________
FEd ____________________
DR ____________________
DEd ____________________
FWSR ____________________
KP ____________________
2ED ____________________
DEd ____________________

Exhibit 8. (Continued.)

Hydrologic Unit Code



LEGEND

● County seat
City, town, or village
✈ Scheduled service airport

INTRODUCTION

This questionnaire is part of a combined U.S. Fish and Wildlife Service (FWS) and U.S. Environmental Protection Agency (EPA) effort to understand better the biological conditions of the nation's waters and to initiate the first nationwide fisheries data base. You have been selected to participate in the study because of your knowledge and expertise in the field of fisheries biology especially for the reach identified in this questionnaire.

The reach highlighted on the map was randomly selected from a national list of reaches contained in the EPA River Reach File. This file will also serve as the framework for the FWS fisheries data base.

The questions asked of you in this questionnaire were developed jointly by the FWS and the EPA, and were finalized based upon a pretest of the questionnaire conducted in the Fall of 1981. The principal focus of the questionnaire is on sport fish; this is not because sport fish are the only contributors to the value of the reach, but because the majority of available fisheries information concerns these species, and their presence or absence generally indicates conditions of prevailing water quality.

Because only a small number of reaches has been selected for this study, the participation of each scientist selected is extremely important. Please answer all questions. The information that you provide will be used only for statistical analysis of fisheries at the national level. You and your agency will receive copies of the final report of this National Fisheries Survey.

Exhibit 8. (Continued.)

For question 1, please print in the left hand column the scientific names of all species that occur in the reach at any time. Use additional names (e.g., *salmo gairdneri* – steelhead) if necessary to identify exactly the species present. Check or code all columns of the matrix that are applicable to these species. You may base your answer on personal experience through field sampling, discussion with colleagues or professional judgment.

For the purpose of answering this question, the following definitions apply:

- **Sport fish: any fish with a legal limit (numbers, weight, or volume) set by your state's fishing regulations.**
- **Special concern: any fish species that is of particular concern to the state for preservation and management; included are state-listed threatened or endangered species, native species receiving special management attention, and other species of special concern for study and management; excluded are species receiving special management strictly to improve or diversify recreational fishing.**
- **Federal threatened or endangered species should be so indicated in the columns provided.**

1.

POPULATION CODES

A – Presence
A = Abundant
C = Common
U = Uncommon
R = Rare
E = Expected
X = Unknown

B – Percentage of Reach with Species
1, 10, 20, etc.

C – Lifestage stocked
(if not stocked, leave blank)
E = Egg
L = Larvae
F = Fingerling
S = Subcatchable
C = Catchable

D – Frequency of stocking
1 = Less than once annually
2 = Annually
3 = More than once annually

	Check all that apply to the species.													**Refer to population codes in box at left.**			
	Fish Classes							**Reach Description or Use**						**Population**			
														A	**B**	**C**	**D**
List the genus/species/subspecies, race, etc., for all fish species.	Sport	Anadromous	Endangered (Federal)	Threatened (Federal)	Special concern (State)	Commercial	Nonsport	Year round resident	Spawn elsewhere	Spawn and hatch	Nursery	Migration route	Over winter	Presence	Percentage of reach with species	Lifestage stocked	Frequency of stocking
1. ______																	
2. ______																	
3. ______																	
4. ______																	
5. ______																	
6. ______																	
7. ______																	
8. ______																	
9. ______																	
10. ______																	
11. ______																	
If you need more lines to complete the species list, use the back of the last page.																	

BEST COPY AVAILABLE

Exhibit 8. (Continued.)

Question 2 is concerned with the type of information you have available to complete this questionnaire. For the purpose of completing these questions, the following definitions apply:

- Qualitative sampling: this includes visual reconnaissance surveys and techniques which indicate only a species' presence or absence.
- Quantitative sampling: this includes techniques which produce numerical data in the form of population and productivity estimates, relative abundance ratings, biomass estimates, nest or redd counts, etc.

2. Has fish sampling occurred within this reach? CIRCLE ONE NUMBER

Yes, definitely	1	→ ANSWER A
Yes, suspected	2	
Doubtful	3	→ ANSWER B
No, definitely	4	
Unknown	5	

IF SAMPLING OCCURRED (YES, DEFINITELY OR SUSPECTED)

A. List the year(s) of sampling for each type of survey within this reach.

Qualitative ______________________________

Quantitative ______________________________

IF REACH WAS NOT SAMPLED (NO, DEFINITELY OR DOUBTFUL)

B. Has fish sampling occurred within the cataloging unit? CIRCLE ONE NUMBER

Yes, definitely	1	→ ANSWER C
Yes, suspected	2	
Doubtful	3	→ GO TO Q. 3
No, definitely	4	
Unknown	5	

IF SAMPLING OCCURRED (YES, DEFINITELY OR SUSPECTED)

C. List the year(s) of sampling for each type of survey within this cataloging unit.

Qualitative ______________________________

Quantitative ______________________________

3. Check the months the reach has water usable as fish habitat during a normal water year.

All year	J	F	M	A	M	J	J	A	S	O	N	D	None
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Exhibit 8. (Continued.)

Question 4 concerns adverse conditions that may be affecting fish in the reach. Note that natural conditions are included in the tables. The tables should be completed one at a time. For example, if a reach is dammed and several adverse conditions result, each table (water quality, water quantity, usable habitat, fish community) should be completed as a unit. If the dam is causing gas supersaturation in the reach, #6 and #46 should be checked; if the dam blocks fish access to spawning gravel upstream, #27 and #71 should be checked. Check "other" only when necessary to explain reach conditions; keep explanations brief.

4. Is the survival, productivity, or use of the fish community being adversely affected by natural or man-made conditions in the reach? CIRCLE ONE NUMBER

Yes, definitely .... 1 → ANSWER A
Yes, suspected .... 2 → ANSWER A
Doubtful .... 3 → GO TO Q. 5
No, definitely .... 4 → GO TO Q. 5
Unknown .... 5 → GO TO Q. 5

IF YES (DEFINITELY OR SUSPECTED):

A. Please complete the following tables by checking appropriate factors and sources. If possible, indicate if the factors and sources are of major or minor concern.

TABLE I.

WATER QUALITY

Check all applicable categories and circle 1 (Major) or 2 (Minor) in each category checked.

A. LIMITING FACTOR

	Major	Minor
1___Temperature too high	1	2
2___Temperature too low	1	2
3___Turbidity	1	2
4___Salinity	1	2
5___Dissolved oxygen	1	2
6___Gas supersaturation	1	2
7___pH too acidic	1	2
8___pH too basic	1	2
9___Nutrient deficiency	1	2
10___Nutrient surplus	1	2
11___Toxic substances	1	2
12___Other (specify below)		
____________________	1	2

B. PROBABLE SOURCE

	Major	Minor
39___Primarily upstream	1	2
40___Within reach	1	2
41___Point source discharge	1	2
42___Industrial	1	2
43___Municipal	1	2
44___Combined sewer	1	2
45___Mining	1	2
46___Dam release	1	2
47___Nonpoint source discharge	1	2
48___Individual sewage disposal	1	2
49___Urban runoff	1	2
50___Landfill leachate	1	2
51___Construction	1	2
52___Agriculture	1	2
53___Feedlot	1	2
54___Silviculture/logging	1	2
55___Mining	1	2
56___Natural	1	2
57___Unknown	1	2
58___Other (specify below)		
____________________	1	2

Exhibit 8. (Continued.)

TABLE II.

WATER QUANTITY

Check all applicable categories and circle 1 (Major) or 2 (Minor) in each category checked.

C. LIMITING FACTOR

	Major	Minor
13___Below optimum flows	1	2
14___Above optimum flows	1	2
15___Loss of flushing flows	1	2
16___Excessive flow fluctuation	1	2
17___Occasional low flow	1	2
18___Other (specify below)		
______________________	1	2

D. PROBABLE SOURCE

	Major	Minor
59___Dam (power)	1	2
60___Dam (flood control)	1	2
61___Dam (storage)	1	2
62___Diversion (agriculture)	1	2
63___Diversion (municipal)	1	2
64___Diversion (industrial)	1	2
65___Natural	1	2
66___Other (specify below)		
______________________	1	2

TABLE III.

USABLE HABITAT

Check all applicable categories and circle 1 (Major) or 2 (Minor) in each category checked.

E. LIMITING FACTOR

	Major	Minor
19___Adult/juvenile habitat	1	2
20___Pools	1	2
21___Riffles	1	2
22___Undercut banks	1	2
23___Boulders	1	2
24___Snags	1	2
25___Overhead cover	1	2
26___Egg/larvae habitat	1	2
27___Gravel	1	2
28___Plants, plant debris	1	2
29___Other (specify below)		
______________________	1	2

F. PROBABLE CAUSE

	Major	Minor
67___Excessive siltation	1	2
68___Bank erosion/sloughing	1	2
69___Channelization	1	2
70___Other channel modifications	1	2
71___Migration blockage	1	2
72___Natural	1	2
73___Unknown	1	2
74___Other (specify below)		
______________________	1	2

TABLE IV.

FISH COMMUNITY

Check all applicable categories and circle 1 (Major) or 2 (Minor) in each category checked.

G. LIMITING FACTOR

	Major	Minor
30___Fish kills	1	2
31___Contamination	1	2
32___Diseases/parasites	1	2
33___Tumors/lesions	1	2
34___Overharvest	1	2
35___Poaching	1	2
36___Underharvest	1	2
37___Fish stocking	1	2
38___Other (specify below)		
______________________	1	2

H. PROBABLE SOURCE

	Major	Minor
75___Heavy metals	1	2
76___Pesticides	1	2
77___Other noxious/toxic substances	1	2
78___Crowding	1	2
79___Other stress	1	2
80___Natural	1	2
81___Unknown	1	2
82___Other (specify below)		
______________________	1	2

Exhibit 8. (Continued.)

The next few questions are a subjective but necessary part of this survey. To provide some standardization for response, a "ladder" is shown below describing the spectrum of conditions that could exist in an aquatic ecosystem in terms of the fish community. At the top of the ladder is the ideal situation of maximum ability to support a fish community of high interest, i.e., a community of sport fish or other species of special concern. The bottom of the ladder represents a reach that is incapable of supporting any fish community. Please use this ladder as a reference in answering questions 5, 6, 7, 8, and 9.

5	The reach exhibits a maximum ability to support a community of sport fish, species of special concern, or both.
4	
3	
2	The reach exhibits a minimum ability to support a community of sport fish, species of special concern, or both.
1	The reach exhibits an ability to support a nonsport fish population only.
0	The reach has no ability to support any fish population.

Exhibit 8. (Continued.)

CHECK ONE BOX FOR EACH QUESTION

5. Using the scale shown on the opposite page, how would you rank the current conditions of the reach?

☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5

6. Again using this scale, how would you rank the conditions of the reach five years ago?

☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5

7. If present trends in the reach continue, how will it rank five years from now?

☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5

8. Should the man-caused limiting factors (if previously indicated in question 4A) be eliminated or controlled, how will the reach rank five years from now?

☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5

9. Considering, as a standard, a reach in the same or adjacent cataloging unit with the greatest ability to support sport fish, how would you rate that reach on the scale?

☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5

Exhibit 8. (Continued.)

USE THIS PAGE ONLY IF YOU NEED TO LIST MORE THAN 11 SPECIES OF FISH IN QUESTION 1.

POPULATION CODES

A – Presence

A = Abundant
C = Common
U = Uncommon
R = Rare
E = Expected
X = Unknown

B – Percentage of Reach with Species

1, 10, 20, etc.

C – Lifestage stocked
(if not stocked, leave blank)

E = Egg
L = Larvae
F = Fingerling
S = Subcatchable
C = Catchable

D – Frequency of stocking

1 = Less than once annually
2 = Annually
3 = More than once annually

	Check all that apply to the species.													**Refer to population codes in box at left.**			
	Fish Classes							**Reach Description or Use**						**Population**			
														A	**B**	**C**	**D**
List the genus/species/subspecies, race, etc., for all fish species.	Sport	Anadromous	Endangered (Federal)	Threatened (Federal)	Special concern (State)	Commercial	Nonsport	Year round resident	Spawn elsewhere	Spawn and hatch	Nursery	Migration route	Over winter	Presence	Percentage of reach with species	Lifestage stocked	Frequency of stocking
12.																	
13.																	
14.																	
15.																	
16.																	

Exhibit 8. (Concluded.)

RESPONDENT IDENTIFICATION

(to be filled out by the person who completed the questionnaire)*

Name ______________________________

State and Agency ______________________________

Department/Division ______________________________

Title ______________________________

Years in this position ______________________________

Years in the field of fisheries ______________________________

Years familiar with this river basin ______________________________

Present mailing address:

Room/Building No. ____________________ P.O. Box ____________________

Street ______________________________

City and State ______________________________

Zip Code ____________________ Telephone No. ____________________

*Please list the names of any additional people who assisted in completing the questionnaire.

____

____

____

____

____

Please return this questionnaire in the enclosed, self addressed, stamped envelope to:

Exhibit 9. Cover letter.

NATIONAL FISHERIES SURVEY

Fish and Wildlife Service
U.S. Department of Interior
Ft. Collins, Colorado

EPA
U.S. Environmental Protection Agency
Washington, D.C.

Engineering-Science, Inc.

Dear Fisheries Biologist:

You have been designated by your agency as the respondent to complete the enclosed questionnaire for the National Fisheries Survey. This survey is a cooperative effort of the U.S. Fish and Wildlife Service and the U.S. Environmental Protection Agency. The survey is designed to assess the "biological integrity of the Nation's waters" as specified in the Federal Clean Water Act, PL 92-500 and amendments. Our goal for this project is to obtain fisheries data on a statistical sample of 1300 reaches selected across the lower 48 states. Future related project goals are to (1) provide a standard method for locating and numbering stream segments (river reaches) on a National basis; (2) develop a data base of existing fisheries information corresponding to these same river reaches; and (3) make this standardized data base available to interested States. All information from this survey will be analyzed on a National basis and the USFWS will be forwarding a copy of the final report to your Agency.

Your knowledge about the status of the fisheries in certain reaches of your State has been recognized as being of prime importance. Therefore, we are requesting that you complete and return the questionnaire(s) within one (1) month in the self-addressed, stamped envelope also enclosed.

Each questionnaire contains a highlighted map of the reach of interest. This map is a partial copy of the U.S.G.S. 1:500,000 Hydrologic Unit Map for your State. Each questionnaire should require approximately one-half (1/2) hour to complete, contains complete instructions, and where necessary, definitions of terms to assist you in completing the form. Should you have questions regarding the questionnaire or require assistance in completing the questionnaire, assistance will be provided by calling the toll free telephone number below.

We appreciate your assistance in our efforts to obtain complete information on the status of the fisheries in the Nation and await your response.

For information call
1-455-4427 (Colorado)
1-800-525-2041 (outside Colorado)

Exhibit 10. Field office weekly status report.

NATIONAL FISHERIES SURVEY

Field Office Weekly Status Report

For week ending __/__/__ From:

Pre-print field office names
and addresses

STATE	NUMBER OF SAMPLED REACHES	RECEIPT STATUS			FLOW STATUS		
		Received this week	Cumulative Total	Out-standing	Sent to Denver this wk.	Cum. Total sent	In field office

Exhibit 11. Field office transmittal slip.

NATIONAL FISHERIES SURVEY

Field Office Transmittal Slip

Ship to: National Fisheries Survey
%Engineering Science
10 Lakeside Lane
Denver, CO 80212

From:

Shipment # __________

Date of Shipment ___/___/___

#		Receipt verified?
_______	Field Communication Records	
_______	Questionnaires (LIST REACH ID#s)	
	____________ ____________ ____________	
	____________ ____________ ____________	
	____________ ____________ ____________	
	____________ ____________ ____________	
	____________ ____________ ____________	
	____________ ____________ ____________	
	____________ ____________ ____________	
	____________ ____________ ____________	
_______	Weekly Status Report	
_______	______________________________________	
_______	______________________________________	

Comments:

Exhibit 12. Transmittal form to FWS.

NATIONAL FISHERIES SURVEY

Fish and Wildlife Service
U.S. Department of Interior
Ft. Collins, Colorado

EPA
U.S. Environmental Protection Agency
Washington, D.C.

Engineering-Science, Inc.

Transmittal Form to FWS

Ship to: Ms. Molly Whitworth
Project Officer
USFWS/WELUT
Creekside Building One
2625 Redwing Road
Fort Collins, CO 80526

From: National Fisheries Survey
Engineering Science
10 Lakeside Lane
Denver, CO 80212

Shipment # __________

Date of Shipment ___/___/___

STATE	This Shipment	Total to Date	State Complete Yes/No	USFWS Receipt verified? Yes/No
1.				
2.				
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9.				
10.				

Comments:

For information call
1-455-4427 (Colorado)
1-800-525-2041 (outside Colorado)

Exhibit 13. Survey Supervisor's weekly status report.

NATIONAL FISHERIES SURVEY

Survey Supervisor's Weekly Status Report

For week ending __/__/__

STATE	NUMBER OF SAMPLED REACHES	COMPLETED AND SENT TO CENTRAL OFFICE		PENDING IN FIELD OFFICE	SENT TO FWS	OUT-STANDING	MAIL OUT DATE
		This Week	Cumulative				

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50272-101

REPORT DOCUMENTATION PAGE	1. REPORT NO. FWS/OBS-84/07	2.
		3. Recipient's Accession No.
4. Title and Subtitle 1982 National Fisheries Survey, Volume III: Survey protocol		5. Report Date June 1984 6.
7. Author(s) Robert D. Judy, Jr., and Paul N. Seeley		8. Performing Organization Rept. No.
9. Performing Organization Name and Address Engineering-Science, Inc. 10 Lakeside Lane Denver, CO 80212		10. Project/Task/Work Unit No. 11. Contract(C) or Grant(G) No. (C) 14-16-0009-81-066 (G)
12. Sponsoring Organization Name and Address	Western Energy and Land Use Team Division of Biological Services Research and Development Fish and Wildlife Service U.S. Department of the Interior Washington, DC 20240	13. Type of Report & Period Covered Third in a 3-volume set 14.

15. Supplementary Notes

Completed under an interagency agreement with Monitoring and Data Support Division, U.S. Environmental Protection Agency, Washington, DC 20460

16. Abstract (Limit: 200 words)

The National Fisheries Survey (Survey) was conducted to provide statistically valid data on the status of fish communities in the United States. As a part of this effort, a detailed protocol was developed to ensure that all data gathering activities would be conducted in a uniform and standardized manner. These methods are the focus of this report. This report also makes recommendations for modifications in the Survey questionnaire so that future surveys can be accomplished with less time expended on personal contacts with respondents. The protocol and the data handling activities were very successful. Over 98.5% of the 1,303 questionnaires mailed out were completed and returned. The steps outlined in this report are recommended for future surveys.

17. Document Analysis a. Descriptors

Surveys
Fishes
Data acquisition

b. Identifiers/Open-Ended Terms

National Fisheries Survey

c. COSATI Field/Group

18. Availability Statement Release unlimited	19. Security Class (This Report) Unclassified	21. No. of Pages 43
	20. Security Class (This Page) Unclassified	22. Price

(See ANSI–Z39.18) See Instructions on Reverse

OPTIONAL FORM 272 (4–77)
(Formerly NTIS–35)
Department of Commerce

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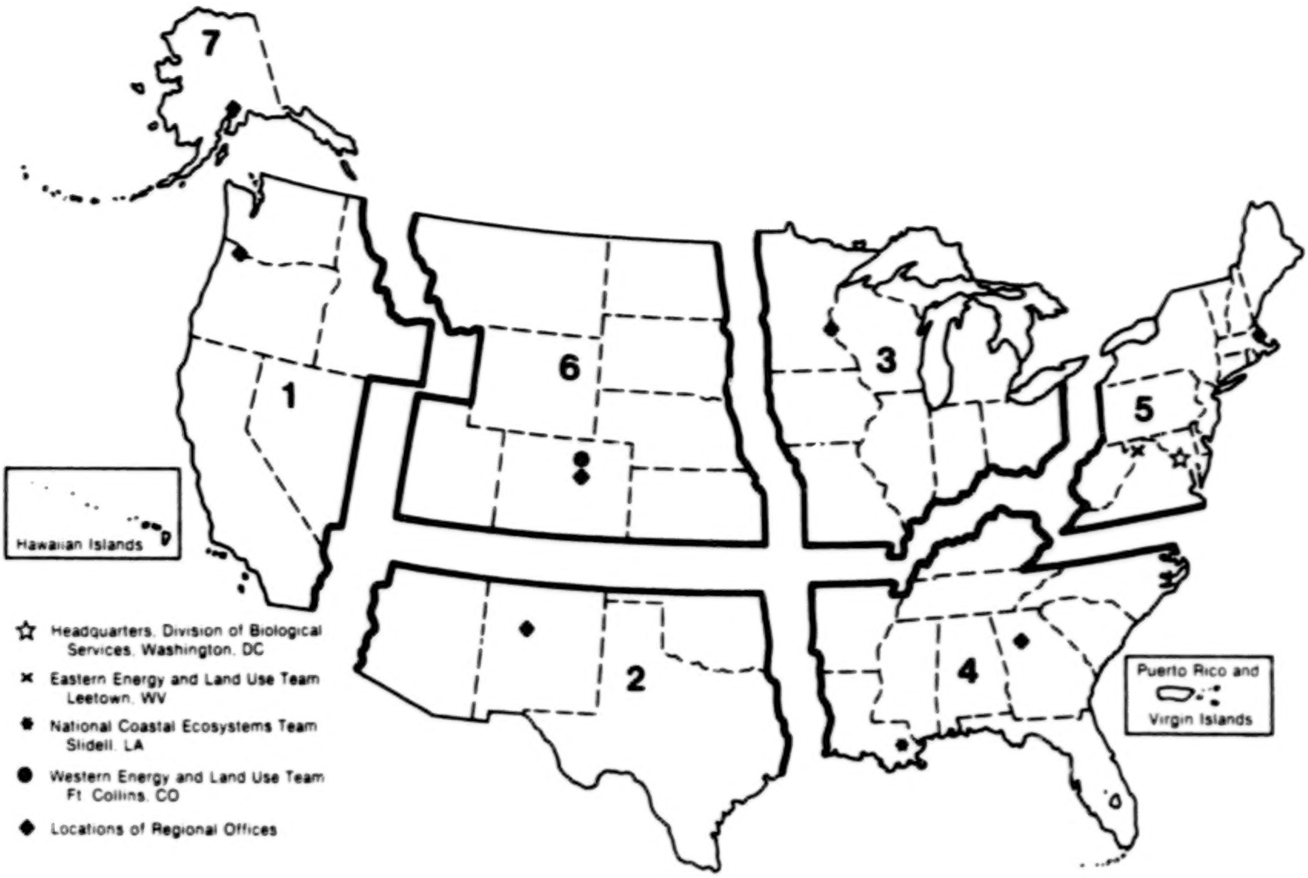
7
1
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Hawaiian Islands
Puerto Rico and Virgin Islands
☆ Headquarters, Division of Biological Services, Washington, DC
× Eastern Energy and Land Use Team Leetown, WV
✱ National Coastal Ecosystems Team Slidell, LA
● Western Energy and Land Use Team Ft. Collins, CO
◆ Locations of Regional Offices

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Lloyd Five Hundred Building, Suite 1692
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REGION 2
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P.O. Box 1306
Albuquerque, New Mexico 87103

REGION 3
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U.S. Fish and Wildlife Service
Federal Building, Fort Snelling
Twin Cities, Minnesota 55111

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Atlanta, Georgia 30303

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Regional Director
U.S. Fish and Wildlife Service
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Denver Federal Center
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REGION 7
Regional Director
U.S. Fish and Wildlife Service
1011 E. Tudor Road
Anchorage, Alaska 99503

DEPARTMENT OF THE INTERIOR
U.S. FISH AND WILDLIFE SERVICE

As the Nation's principal conservation agency, the Department of the Interior has responsibility for most of our nationally owned public lands and natural resources. This includes fostering the wisest use of our land and water resources, protecting our fish and wildlife, preserving the environmental and cultural values of our national parks and historical places, and providing for the enjoyment of life through outdoor recreation. The Department assesses our energy and mineral resources and works to assure that their development is in the best interests of all our people. The Department also has a major responsibility for American Indian reservation communities and for people who live in island territories under U.S. administration.

END

12-10-84